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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
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Please find below and/or attached an Office communication concerning this application or proceeding.

8C

Office Action Summary	Application No. 09/373,926	Applicant(s) Ming et al
	Examiner Alexander Kalinowski	Art Unit 2166

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *Aug 12, 1999*.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-64* is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-64* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☒ Claims *42-44* are subject to restriction and/or election requirement.

Application Papers

9) ☒ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) ☒ Notice of References Cited (PTO-892)
16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). *4, 5, 6*
18) ☐ Interview Summary (PTO-413) Paper No(s). _____
19) ☐ Notice of Informal Patent Application (PTO-152)
20) ☐ Other:

DETAILED ACTION

1. Claims 1-64 are presented for examination.

Election/Restriction

2. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-41 and 45-64, drawn to a method and system for detecting misrepresentation of policy related information to an insurer, classified in class 705, subclass 4.

II. Claims 42-44, drawn to training a neural network on a plurality of observations to score the observations, classified in class 706, subclass 15.

3. The inventions are distinct, each from the other because of the following reasons: Inventions I and II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention II has separate utility such as use with any predictive model for predicting fraudulent transactions such as credit card fraud. See MPEP § 806.05(d).

4. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

5. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

6. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

7. During a telephone conversation with Robert Sacks on 3/14/2002 a provisional election was made without traverse to prosecute the invention of group I, claims 1-41 and 45-64. Affirmation of this election must be made by applicant in replying to this Office action. Claims 42-44 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

8. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(I).

Requirement for Information Under 37 C.F.R. § 1.105

1. Applicant and the assignee of this application are required under 37 CFR 1.105 to provide the following information that the examiner has determined is reasonably necessary to the examination of this application.

2. The information is required to identify publications embodying the disclosed subject matter of method for detecting misrepresentation of policy information provided to an insurer by a policyholder. The Examiner upon conducting a search for prior art, discovered a published document titled "EDS, HNC Software, and ITC Team up to tackle Medicaid Fraud" (copy included). The document disclosed a software product employing predictive solutions to workers' compensation employer premium fraud. In response to this requirement please provide any known publications, brochures, manuals and press releases that describe the software product that was the subject of the two articles.

3. The fee and certification requirements of 37 C.F.R. § 1.97 are waived for those documents submitted in reply to this requirement. This waiver extends only to those documents within the scope of this requirement under 37 C.F.R. § 1.105 that are included in the applicant's first complete communication responding to this requirement. Any supplemental replies subsequent to the first communication responding to this requirement and any information disclosures beyond

the scope of this requirement under 37 C.F.R. § 1.105 are subject to the fee and certification requirements of 37 C.F.R. § 1.97.

4. In responding to those requirements that require copies of documents, where the document is a bound text or a single article over 50 pages, the requirement may be met by providing copies of those pages that provide the particular subject matter indicated in the requirement, or where such subject matter is not indicated, the subject matter found in applicant's disclosure.

5. The applicant is reminded that the reply to this requirement must be made with candor and good faith under 37 CFR 1.56. Where the applicant does not have or cannot readily obtain an item of required information, a statement that the item is unknown or cannot be readily obtained will be accepted as a complete response to the requirement for that item.

Specification

9. The abstract of the disclosure is objected to because it exceeds 150 words. Correction is required. See MPEP § 608.01(b).

Claim Objections

10. Claim 14 is objected to because of the following informalities: typographical error in the claim.

In claim 14, line 3, after "characteristic", delete --o--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

11. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

12. Claims 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

13. Claim 6 recites the limitation "the scoring period" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

14. Claims 1-11, 17-41 and 49-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gopinathan et al., Pat. No. 5,819,226 (hereinafter Gopinathan) in view of Fischthal, Patent No. 5,822,741) and Downs, Sean, "Technology, education aid medical fraud fighting"(hereinafter Downs).

Gopinathan discloses a method for detecting fraud employing predictive modeling techniques. Gopinathan discloses a model development component that uses past data to build a neural network containing information representing learned relationships among a number of variables (col. 4, lines 46-51). This is the derivation of variables from related information provided. Gopinathan further discloses that the derived variables are applied to the neural network and a fraud score (representing the likelihood of fraud for the transaction) is obtained and compared to a threshold value (col. 4, lines 31-42; col. 28, lines 3-5). This is the model score indicating the relative likelihood of misrepresented information.

Gopinathan further discloses a model development component that uses past data to build a neural network containing information representing learned relationships among a number of variables (col. 4, lines 46-51). The neural network model is trained using data describing past transactions from the data network, and then data describing the network model are stored (col. 4, lines 31-42). Once the model description is stored, the system is able to process current transactions.

Gopinathan also discloses a model development component that uses past data to build a neural network containing information representing learned relationships among a number of variables (col. 4, lines 46-51). The neural network model is trained using data describing past transactions from the data network, and then data describing the network model are stored (col. 4, lines 31-42). Once the model description is stored, the system is able to process current

transactions. The model then determines a fraud score and reason codes, which are output to the user, or to a database, or to another system via output device. Gopinathan further discloses a method of calculating the fraud rate score and then comparing this score to a threshold value (col. 28, lines 3-5). This threshold value is then used to determine if the transaction is approved. Gopinathan does not explicitly disclose

that the predictive model is employed in insurance transactions.

However, Fischthal discloses a neural network for detecting fraud in insurance transactions (col. 4, lines 62-66). The motivation to use such a neural network was to manage large amounts of data and to quickly and efficiently perform the difficult and tedious tasks that are required to be performed by human experts (see Fischthal, col. 4, lines 17-25). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to include the neural network for detecting fraud in insurance transactions as disclosed by Fischthal within the neural network predictive model of Gopinathan for the motivation stated above.

Gopinathan does not explicitly disclose

that the higher fraud score is used to increase insurance premiums.

However, Gopinathan discloses that the increased fraud score is used to characterize, classify, and order SIC codes as well as to represent the likelihood of fraud for each transaction (col. 26, lines 60-64). Furthermore, Downs discloses paying the high cost of fraud in the form of increased premiums. The motivation for this is to compensate insurance carriers for losses due to fraudulent claims (page 1, column one, paragraph 1). It would have been obvious to one of

ordinary skill in the art at the time of Applicant's invention to include that the higher fraud score is used to increase insurance premiums as disclosed by Downs within the Gopinathan and Fischthal combination for the motivation stated above.

15. Claims 12-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gopinathan, Fischthal, and Downs as applied to claim 1 above, and further in view of Prezioso, Patent No. 5,724,488.

Gopinathan, Fischthal and Downs disclose the method of claim 1.

Gopinathan, Fischthal and Downs do not explicitly disclose

determining a plurality of peer groups of which the selected policy is a member and

for each peer group, deriving variables from the policy which attribute characteristics of the peer group or set of peer groups to the selected policy or which compare the selected policy to other policies of the peer group.

However, Prezioso discloses a hierarchical ordering of categories with which to determine a quantity corresponding to a set of behaviors, that is entities, the entities being different indicators that fraudulent behavior is occurring (col. 8, lines 18-28, lines 50-59). The motivation for this is to determine a behavior profile comprising a large number of behavior characteristics for entities to be used to detect abnormal or dissimilar behavior (col. 2, lines 4-15 and lines 29-43). Prezioso further discloses identifying the behavior within a peer group that indicate that the target behavior is compatible with the peer group. It would have been obvious to one of ordinary skill in the art at

the time of Applicant's invention to include determining a plurality of peer groups of which the selected policy is a member and for each peer group, deriving variables from the policy which attribute characteristics of the peer group or set of peer groups to the selected policy or which compare the selected policy to other policies of the peer group as disclosed by Prezioso within Gopinathan, Fischthal and Downs for the motivation stated above.

16. Claims 45-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gopinathan in view of Prezioso.

Gopinathan discloses a method for detecting fraud employing predictive modeling techniques. Gopinathan discloses a model development component that uses past data to build a neural network containing information representing learned relationships among a number of variables (col. 4, lines 46-51).

Gopinathan does not explicitly disclose

a set of entities corresponding to a hierarchical ordering of categories.

Prezioso discloses a hierarchical ordering of categories with which to determine a quantity corresponding to a set of behaviors, that is entities, the entities being different indicators that fraudulent behavior is occurring (col. 8, lines 18-28, lines 50-59). The motivation for this is to determine a behavior profile comprising a large number of behavior characteristics for entities to

be used to detect abnormal or dissimilar behavior (col. 2, lines 4-15 and lines 29-43). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to include a set of entities corresponding to a hierarchical ordering of categories as disclosed by Prezioso within Gopinathan for the motivation stated above.

17. Claims 53-64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gopinathan in view of Fischthal, Downs, and Werstein Hann, Leslie, "High-Tech Sleuths" (hereinafter Hann).

Gopinathan discloses a method for detecting fraud employing predictive modeling techniques. Gopinathan discloses a model development component that uses past data to build a neural network containing information representing learned relationships among a number of variables (col. 4, lines 46-51). This is the derivation of variables from related information provided. Gopinathan further discloses that the derived variables are applied to the neural network and a fraud score (representing the likelihood of fraud for the transaction) is obtained and compared to a threshold value (col. 4, lines 31-42; col. 28, lines 3-5). This is the model score indicating the relative likelihood of misrepresented information.

Gopinathan further discloses a model development component that uses past data to build a neural network containing information representing learned relationships among a number of variables (col. 4, lines 46-51). The neural network model is trained using data describing past transactions from the data network, and then data describing the network model are stored (col.

4, lines 31-42). Once the model description is stored, the system is able to process current transactions.

Gopinathan also discloses a model development component that uses past data to build a neural network containing information representing learned relationships among a number of variables (col. 4, lines 46-51). The neural network model is trained using data describing past transactions from the data network, and then data describing the network model are stored (col. 4, lines 31-42). Once the model description is stored, the system is able to process current transactions. The model then determines a fraud score and reason codes, which are output to the user, or to a database, or to another system via output device. Gopinathan further discloses a method of calculating the fraud rate score and then comparing this score to a threshold value (col. 28, lines 3-5). This threshold value is then used to determine if the transaction is approved. Gopinathan does not explicitly disclose

that the predictive model is employed in insurance transactions.

However, Fischthal discloses a neural network for detecting fraud in insurance transactions (col. 4, lines 62-66). The motivation to use such a neural network was to manage large amounts of data and to quickly and efficiently perform the difficult and tedious tasks that are required to be performed by human experts (see Fischthal, col. 4, lines 17-25). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to include the neural network for detecting fraud in insurance transactions as disclosed by Fischthal within the neural network predictive model of Gopinathan for the motivation stated above.

Gopinathan does not explicitly disclose

that the higher fraud score is used to increase insurance premiums.

However, Gopinathan discloses that the increased fraud score is used to characterize, classify, and order SIC codes as well as to represent the likelihood of fraud for each transaction (col. 26, lines 60-64). Furthermore, Downs discloses paying the high cost of fraud in the form of increased premiums. The motivation for this is to compensate insurance carriers for losses due to fraudulent claims (page 1, column one, paragraph 1). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to include that the higher fraud score is used to increase insurance premiums as disclosed by Downs within the Gopinathan and Fischthal combination for the motivation stated above.

Gopinathan does not explicitly disclose

defining an audit action for performing on policies which have a score exceeding a threshold value but not exceeding a next greater threshold value.

However, Hann discloses defining an audit action for performing on policies which have a score exceeding a threshold value but not exceeding a next greater threshold value (i.e. system alerts adjusters to claims that score 500 or more and claims that hit 800 are automatically referred to a special investigator)(page 2, column 3). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to include defining an audit action for performing on policies which have a score exceeding a threshold value but not exceeding a next greater threshold value as disclosed by Hann within the Gopinathan, Fischthal and Downs combination for the

motivation of using a software tool that helps identify cases that are most likely to be fraudulent (page 2, column 3).

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Pat. No 6,253,186 discloses a system for detecting fraudulent suppliers and providers.

b. "HNC Insurance Solutions Introduces Spyder, Software for Healthcare Fraud & Abuse Containment" discloses predictive software for detecting employer and provider fraud worker's compensation claims.

c. "HNC Insurance Solutions Delivers Predictive Software for Detecting Premium Fraud" discloses detecting worker's compensation premium fraud.

d."EDS, HNC Software, and ITC Team up to tackle Medicaid Fraud" discloses a neural network system for detecting fraud in workers' compensation insurance industries.

e. "Neural Networks enter the world of management accounting" discloses using neural networks to detect fraud.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Kalinowski, whose telephone number is (703) 305-2398. The examiner can normally be reached on Monday to Thursday from 8:30 AM to 6:00 PM. In addition, the examiner can be reached on alternate Fridays.

If any attempt to reached the examiner by telephone is unsuccessful, the examiner's supervisor, Joseph Thomas, can be reached on (703) 305-9588. The fax telephone number for this group is (703) 305-0040.

Alexander Kalinowski

3/24/2002

JOSEPH THOMAS
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